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UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
EUGENE DISTRICT OFFICE

Enhancement Activities for Kincaid's Lupine and Fender's Blue Butterfly

Environmental Assessment No. ORO 90-99-26

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Prepared by: Kathy Pendergrass Date: 8/30/99

Environmental Coordinator: Gary A. Hoppe Date: 8/30/99

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I. PURPOSE AND NEED FOR THE PROPOSED ACTION

Upland prairie species in the Willamette Valley in Oregon are in decline. Less than 0.5% of historic upland prairies remain. Two species associated with upland prairies have recently been proposed to be listed under the U.S. Endangered Species Act. These are Fender's blue butterfly, (*Icaricia icarioides* ssp. *fenderi* - proposed to be listed as "Endangered") and Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii* - proposed to be listed as "Threatened"; Federal Register, January 1998). Recovery of these species will require management of declining populations and restoration of habitat that maintains these species. Kincaid's lupine is the predominant host plant of the larval stage of Fender's blue butterfly, thus management for these two species should be closely linked. This Environmental Assessment (EA) addresses strategies to help insure both short and long-term viability of both lupine and butterfly populations at three Eugene District - Bureau of Land Management (BLM) sites through a variety of management techniques proposed to be implemented over a seven year period (years 1999-2005).

The proposed action is intended to enhance habitat for Kincaid's lupine, Fender's blue butterfly and a Bureau Sensitive plant, white-top aster (*Aster curtus*) by controlling woody plant encroachment and invigorating prairie plant components. These species are endemic to prairies of the Willamette Valley and their populations and habitats are shrinking due to agricultural and urban development, and encroachment by woody species. It is BLM's responsibility, by way of provisions in the Endangered Species Act (1973) and BLM policy, to work to insure the protection, perpetuation and enhancement of populations of these species.

BLM presently has three known sites of Kincaid's lupine on lands within the West Eugene Wetlands Project area. The Fir Butte site is known to support a small population of Fender's blue butterfly while only a few (potential) eggs of the butterfly have been observed at the Coble and Oxbow West sites. Presently, all three sites of Kincaid's lupine are being engulfed by Himalayan blackberry (*Rubus discolor*) and it is expected that blackberries will over-take the entire habitat for this species at all three sites within two decades. Therefore,

inaction on the part of the BLM will eventually lead to extirpation of both lupine and butterfly populations.

Willamette Valley prairies historically evolved with late summer or fall-season fires and plants of these prairies are well-adapted and potentially dependent upon the presence of fire to perpetuate populations. Prescribed burns conducted during recent years have invigorated rare wet prairie species and have set back plant succession by killing shrubs and seedling and sapling trees (refer to EA-90-36, EA-92-49, EA-95-27, and Pendergrass 1995). Past studies also indicate that prescribed burns have reduced the cover of aggressive weeds and invigorated Kincaid's lupine (Clark and Wilson 1998). Additionally, Clark and Wilson (1998) demonstrated that, although fire may kill Fender's blue butterfly larvae in the short-term, it is likely essential for maintaining the butterfly's habitat in the long-term. Recent modeling of population viability suggest that frequent habitat burning is necessary for Fender's blue butterfly to persist (Schultz and Crone 1997).

A variety of management techniques need to be monitored in relation to responses in lupine and butterfly populations due to the controversy associated with prescribed burning and the possibility that some other effective management technique(s) might be determined. The response to various management treatments of aggressive non-native species that occur within these prairies is also unknown and needs to be monitored to maintain native composition of these prairie habitats.

II. CONFORMANCE

The Proposed Action is consistent with provisions set forth in the Endangered Species Act (1973) and BLM policies and management objectives to improve habitat for Bureau Sensitive species. The proposed action and alternatives are in conformance with the West Eugene Wetlands Plan (City of Eugene 1992) and the Eugene District Record of Decision and Resource Management Plan (May 1995).

III. PROPOSED ACTION AND ALTERNATIVES

Proposed Action (Alternative A): The proposed action is to enhance habitat for Kincaid's lupine and Fender's blue butterfly at three known sites on BLM lands over the next seven years from September, 1999 through October, 2005. Management activities will occur at West Oxbow, Coble, and Fir Butte sites. Monitoring of Kincaid's lupine and Fender's blue butterfly abundance and distribution has been established at all sites. Management actions would be evaluated yearly and after the seven year period to determine best practices for managing populations of these species and their habitat.

In the fall of 1999, intensive efforts would begin to remove Himalayan blackberry and other woody plants from Oxbow West and Coble parcels and from all of the wetland area and one

half of the upland area that supports the lupine and butterfly populations at the Fir Butte site. In the fall of 2000, work would be initiated to eradicate blackberry and other woody species from the other one-half of the upland area at Fir Butte site that did not receive treatment during 1999.

During the initial blackberry reduction phase of 1999 and 2000 at the Fir Butte site, motorized equipment will be used to control and remove blackberries as much as possible in areas outside of lupine concentrations. Where lupine plants occur, only weed-eater and hand removal techniques will be used in the first two years to cut, dig and remove blackberries. Repeated mowing and weed-eating could occur in successive years at a frequency of up to three times during a year between mid-August (after lupine senescence) to March (prior to lupine emergence).

Once a thorough blackberry removal effort has occurred over the entire Fir Butte site (planned for 1999 and 2000), other management treatments will be implemented (planned to initiate in 2001) in replicated blocks to begin to assess prescribed burning, haying/mowing, and hand removal types of treatments in controlling woody species (particularly blackberry) and enhancing populations of lupine and the butterfly. Prescribed burning at Fir Butte will not exceed 1/3 of Fender's blue area (the uplands) in any one year as suggested by Schultz and Crone (1997). A goal for management treatments is to not impact (with all disturbance treatments) any more than 2/3 of the Fir Butte Kincaid's lupine population in any one year and thus not to jeopardize the butterfly population at the site.

Depending on work force availability and weather considerations, the clean-up phase of blackberry removal at Fir Butte could extend beyond the year 2000, thus potentially likewise displacing implementation of various management treatments that would follow.

Project work may include tractor mowing, weed-eating, digging, grubbing, raking, and propane and broadcast burning. Additional actions may include hand-weeding and digging of non-native herbaceous plants, rototilling, solarizing (applying plastic on the soil surface to heat and destroy the soil seed bank), seeding, fertilizing, and planting areas with native prairie plant species to enhance prairie plant composition, reduce competing non-native species and enhance nectary sources for Fender's blue butterfly adults. Additional monitoring and/or research may be generated during the on-going restoration of habitats at these sites.

The duration of each prescribed burn would be less than one hour and would be conducted over only 1/3 or less of the Fir Butte site in any one year. Ignition of burning would be by hand using propane, fusees, or drip torches. Fire control/suppression would be accomplished with pre-burn hose lays, wet-lining and/or fire retardant foam. Areas approximately 1-3 meters wide may be mowed adjacent to planned burn plots to assure fire control. The perimeter of the Fir Butte site might also be mowed or plowed 1-3 meters wide to further assure fire control. Prescribed burns would be conducted in a manner consistent with State and local smoke management regulations. Burns would occur during

August-October, when historic anthropogenic fires would have occurred, when rare plants would be senescent and when clay soils of the grassland are dry, hard, and can support fire-fighting vehicles with minimal damage. Fire vehicles would be restricted to identified routes where no Special Status plants are located. Human movement at the sites would be managed to minimize impacts on native prairie communities and rare species.

Mowing/haying treatments that might occur over the 7-year life of this project would be conducted sometime between mid-July (dependent upon lupine plants being senescent) to October before the autumn rains begin.

Hand removal techniques may be implemented each year at the Oxbow West and Coble sites to control blackberries and other species close to lupine plants. Motorized equipment may be used at these sites to control woody species outside of immediate lupine areas but in the vicinity of populations at these two sites. Other management treatments will be evaluated at the Fir Butte site before implementation at the Coble or Oxbow West sites.

Implementation of monitoring and treatments will be contingent upon funding and work force availability.

Alternative B: In this Alternative, we would not conduct the prescribed burns but all other actions would be implemented as detailed in Alternative A.

Alternative C: The No Action Alternative would be to leave the Kincaid's lupine sites as they are, unmanaged.

IV. AFFECTED ENVIRONMENT

The proposed management actions would occur at three known sites of Kincaid's lupine on BLM lands. All three sites support upland prairie habitat which are being invaded by Himalayan blackberry and other non-native plant species; a common problem for Kincaid's lupine across its range (Hammond 1996, Schultz 1997). The topography is relatively flat at all three sites and fine fuels are approximately 1 to 1.5 tons per acre. The different sites contain varying compositions of native upland prairie species.

Coble Site - This is a small upland prairie site encompassing less than one-fourth of an acre located in Section 29 of Township 17 South, Range 4 West. Approximately 100-300 lupine plants occur on a remnant upland prairie within a matrix of what would have historically been wetland prairie. Although there is a diverse component of non-native species evident, there is also a diverse component of native upland species present. Two possible eggs of Fender's blue butterfly were found on Kincaid's lupine plants during monitoring in June, 1999, although positive identification was not possible.

Oxbow West Site - This small prairie site encompassing less than one-fourth of an acre

located in Section 33 of Township 17 South, Range 4 West. The dominant herbaceous plant is tall fescue (*Festuca arundinacea*) with an assortment of native and non-native species. Himalayan blackberry, common pear (*Pyrus communis*), Douglas hawthorne (*Crataegus douglasii*) and Nutka rose (*Rosa nutkana*) are established and increasing at the site. There are approximately 50 Kincaid's lupine plants and two possible eggs of Fender's blue butterfly were found on plants during 1998.

Fir Butte Site - This site encompasses a total of 18 acres located in Section 24 of Township 17 South, Range 5 West. Along with a high cover of Himalayan blackberry, the site has established patches of Scot's broom, tall oatgrass and meadow knapweed. There are approximately 4.5 acres of wetland prairie and 13.5 acres of upland habitat. The wetland prairie is dominated by tufted hairgrass (*Deschampsia cespitosa*) and a diverse assemblage of native plants. *Aster curtus*, a Bureau Sensitive species, occurs in patches along the edge with upland habitat.

The upland prairie was tilled and seeded with an "improved" pasture mix sometime in the mid-1970's (pers. comm. Ed Alverson). Current vegetation is dominated by non-native species but supports a population of between 500-1000 scattered plants of Kincaid's lupine and a relatively small population of Fender's Blue butterfly. Low occupancy by Fender's is postulated to be due to a lack of nectary sources (food plants) for the adult butterfly (Schultz 1997). Schultz contends that if nectary sources were more available at the Fir Butte site, more adults could be attracted to the site to lay eggs and could thus support a larger Fender's population (Schultz and Dlugosch - in review; Schultz pers. comm. spring, 1999).

V. ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

Proposed Action: The Eugene District BLM has conducted similar management techniques (haying/mowing and prescribed burns) at wet prairie parcels to improve conditions for prairie plants. The U.S. Fish and Wildlife Service, The Nature Conservancy, and the U.S. Army Corps of Engineers have also been implementing prescribed burning and mowing in recent years to improve conditions for Willamette Valley prairie plant species.

Based on research and general observations, BLM can reasonably expect several consequences from proposed management manipulations and monitoring at Kincaid lupine sites, as follows:

Threatened and Endangered Species: The Proposed Action would "Affect, but is Not Likely to Adversely Affect" the Kincaid's lupine because of the expected benefits for this species. Kincaid's lupine would be little effected directly by site treatments as the plants would be senescent during the time of year that treatments would be implemented. The overall net effect on Kincaid's lupine is anticipated to be positive as treatments would

reduce direct competition and shading impacts of blackberries and other non-native plants on lupine plants. Research at Basket Butte, a U.S. Fish and Wildlife refuge out of Salem, Oregon, indicates a positive response of Kincaid's lupine to fall season mowing and prescribed burning (Clark and Wilson 1998).

The Proposed Action "May Affect, and is Likely to Adversely Affect" Fender's blue butterfly. Impacts to butterfly populations may be varied by treatments. Fender's butterfly larvae spend late summer and winter in a dormant phase near the bases of individual lupine plants. Identified impacts to butterfly larvae from haying/mowing and blackberry removal might include crushing by tractor tires or foot traffic and direct cutting by mower blades. Larvae may be eliminated from plants in prescribed burns, although lupine plants are larger in the post fire environment and could thus provide more and better habitat for butterfly larvae (Clark and Wilson 1998). Modeling studies by Schultz and Crone (1997) suggest that frequent burning of Fender's blue butterfly habitat is necessary for Fender's blue to persist. Conversely, prairie butterfly specialists in tall- grass prairies were negatively effected by fire; habitat maintenance with haying was identified as the preferred management treatment (Swengel 1996). In Willamette Valley prairie studies, prescribed burns have increased the frequency or cover of a number of native plant species which may be important nectar sources for adult Fender's blue butterflies (Pendergrass 1995, Taylor 1999).

Based on past findings, it is anticipated that Kincaid's lupine and Fender's blue butterfly would both ultimately benefit from the various actions proposed for this project such as prescribed burning, haying/mowing, planting of nectary plants, removal of Himalayan blackberries, trees, shrubs, and non-native plant species and other restoration techniques described in the proposed action.

No other federally listed or proposed species are known or expected to occur in the vicinity of this project and thus would not be affected by this endeavor. We are currently conferencing on this project and anticipate a letter of concurrence from the U. S. Fish and Wildlife Service (USFWS) prior to woody plant removal in September, 1999. We would incorporate any recommendations from the USFWS into our project implementation.

Wildlife: The timing of treatments during the fall and winter seasons would eliminate impacts to nesting bird species as young have generally fledged. Clearing blackberries would enhance the uplands site potentials for western pond turtle nesting and other grassland bird species.

Cultural Resources: The Fir Butte location was periodically cultivated until the 1970's. If cultural values are present in the upper 20-30 centimeters they are in disturbed context as a result of the earlier cultivation. The proposed burning and grubbing of blackberry vines presents no new disturbance potential. In the years since the 1970's blackberry vines and herbaceous vegetation have grown up and obscured the ground surface precluding non-

invasive cultural resource survey. Lupine areas will be surveyed following the removal of berry vines and rank herbaceous growth.

Irreversible and Irretrievable Commitments of Resources: There are no irreversible or irretrievable resources affected by the Proposed Action.

Soils: The Proposed Action would not result in significant changes to soil resources. Motorized equipment and vehicles would only be operated during periods of low soil moisture to minimize effects from compaction. Designated roads would be established for heavy equipment use. These designated roads would be maintained for access purposes.

Wetlands/Water Quality: There are no anticipated impacts to water quality from the Proposed Action.

Hazardous Materials: The operation of equipment as necessary to implement the Proposed Action in any wetland areas would take place during the summer and early fall when the seasonal wetlands are dry, so there is no chance of diesel fuel or hydraulic fluid spills into water. All other equipment use would occur in upland areas. The foam sometimes used to aid in control of prescribed burning is not considered a hazardous material.

Air Quality: The Proposed Action would not exceed the Department of Environmental Quality ambient air pollution standards. All burning would be done in compliance with the Lane Regional Air Pollution Authority. Airshed impacts would be short-term and minimal.

Cumulative Effects: This proposal is not expected to result in negative cumulative effects. No other specific projects would be occurring within the three lupine sites that could have effects on these species. The greater West Eugene area within which these sites occur is known to be undergoing a rapid urban development phase, contributing to a decline in populations and available habitat for these species. The cumulative effects of the currently proposed lupine enhancement work are expected to contribute to an overall positive cumulative effect for populations and habitat of both Kincaid's lupine and Fender's blue butterfly.

Alternative B: Although woody succession and displacement by blackberries could be forestalled through manual and mechanical removal of shrubs and trees, some enhancing effects of fire on Kincaid's lupine would likely not be mimicked and the viability of the lupine populations could decline followed by a decline in vigor of butterfly populations. Modeling studies by Schultz and Crone (1997) suggest that frequent burning of Fender's blue butterfly habitat is necessary for Fender's blue to persist.

Other impacts from the implementation of Alternative B would be similar to the Proposed

Action except that there would be no short-term changes in air quality due to burning.

Alternative C: The No Action Alternative would be to leave the Kincaid's lupine sites as they are. This would not protect the lupine or butterfly or its grassland habitat from encroaching blackberry and other woody vegetation. Blackberry and other woody plants would eventually dominate the site and lead to the decline and eventual extirpation of Kincaid's lupine, Fender's blue butterfly and white-top aster from these sites.

VI. LIST OF PREPARERS

Graham Armstrong	BLM, CRRA, Hydrologist
John Applegarth	BLM, Wildlife Biologist
Nancy Ashlock	BLM, District Fire/Fuels Management Specialist
Jock Beall	BLM, West Eugene Wetlands Project Manager
Dan Crannell	BLM, CRRA, T&E Wildlife Biologist
Glen Gard	BLM, District Hazardous Materials Coordinator
Gary Hoppe	BLM, Environmental Coordinator
Dave Reed	BLM, CRRA, Fire/Fuels Management Specialist
Sally Sovey	BLM, CRRA, Wildlife Biologist
Kathy L. Pendergrass	BLM, CRRA Botanist
Michael Southard	BLM, District Archeologist
Barry Williams	BLM, CRRA, Soil Scientist
Nancy S. Wogen	BLM, District Botanist

VII. CONSULTATION AND COORDINATION

In compliance with Section 7 of the Endangered Species Act of 1973 (as amended), we are conferencing with the U.S. Fish and Wildlife Service concerning the Proposed Action. It is anticipated that we will receive concurrence from them to proceed with this project. The parameters of this project are similar to restoration treatments that have been conducted with U.S. Fish and Wildlife concurrence in the past (EA-88-15, EA-90-36, EA-92-49, EA-93-30, EA-93-31, EA-94-33, EA-95-27, EA-96-21, EA-98-26).

Specialists currently contacted for consultation and coordination included:

Ed Alverson	Willamette Valley Stewardship Ecologist, The Nature Conservancy
Jesse Cary-Hobbs	City of Eugene, Wetlands Maintenance Coordinator
Greg Fitzpatrick	Willamette Valley Stewardship Coordinator, The Nature Conservancy
Ed Hoover	Eugene Wetlands Program Botanist, The Nature

	Conservancy
Tom Kaye	Oregon Department of Agriculture, Plant Conservation Program
Andy Robinson	U.S. Fish and Wildlife Service
Cheryl Schultz	National Center for Ecological Analysis and Synthesis Conservation Biologist

VIII. REFERENCES

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Preliminary Finding of No Significant Impact

Environmental Assessment No. OR 090-99-26

Proposed Action: The Proposed Action is to proceed with projects to enhance habitats for the Federally proposed Kincaid's lupine (*Lupinus sulphureus* var. *kincaidii*) and Fender's blue butterfly, (*Icaricia icarioides* ssp. *fenderi*), and other rare prairie plant species, including *Aster curtus,* during the next seven years. Management objectives are to increase densities of rare plants and butterflies, to enhance critical habitat for these species, and to gain valuable information for the continued management of these species.

On the basis of the information contained in the attached Environmental Assessment, and all other information available, it has been determined that the proposal does not constitute a major Federal action affecting the quality of the human environment. Therefore, an Environmental Impact Statement or a supplement to the existing Environmental Impact Statement is not necessary and will not be prepared.

Rationale

The Proposed Action would be consistent with enhancing critical habitat for the Federally-Proposed species, *Lupinus sulphureus* var *kincaidii* and *Icaricia icarioides fenderi.* The proposed action is also consistent with BLM policies and management objectives to improve habitat for Bureau Sensitive species. The proposed action and alternatives are in conformance with the West Eugene Wetlands Plan (City of Eugene 1992) and the "Eugene District Record of Decision and Resource Management Plan" (May 1995).